COMMENTS ON "DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR MANAGING CALIFORNIA SPOTTED OWL HABITAT IN THE SIERRA NEVADA FORESTS OF CALIFORNIA, AN ECOSYSTEM APPROACH"

Submitted to the U.S. Forest Service

by

The State of California
The Resources Agency of California
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Introduction

The State of California welcomes the opportunity to present its official comments on the "Draft Environmental Impact Statement for Managing California Spotted Owl Habitat in the Sierra Nevada National Forests of California, an Ecosystem Approach," (DEIS). The ten national forests of the Sierra Nevada--some 9.3 million acres--are in many ways a critical resource to the people of California. Whether viewed as producers of high quality water, recreational wonderlands, a source of valuable forest products, or habitat for a vast array of plant and animal species, the Sierra Nevada national forests have value beyond measure to the State. The primary goals of the State with respect to the national forests are to assure that forest ecosystems are healthy, fire risks are acceptably low, and that a sustainable level of economic opportunity is provided to forest communities.

Although data are still not available to statistically establish clear population trends for the California spotted owl, biologists indicate that the species is not in imminent danger on national forest lands in the Sierra Nevada. However, owl habitat is threatened, particularly by risk of fire. This lack of imminent threat to the owl provides the opportunity for the Forest Service to move carefully in planning for protection of the species in collaboration with the State and other stakeholders, rather than moving forward with an independent solution that is out of proportion to the problem.

The Forest Service has indicated publicly that the draft EIS is just that, a draft. The agency says it will receive comments with an open mind and that it is willing to consider new alternatives, to conduct further analyses, and to consider all comments in developing and selecting the alternative to be implemented. We hope the Forest Service's openness extends to a fundamental

reconsideration of the entire process used to plan for the protection of the owl. In the spirit of openness, the State of California offers these comments on the DEIS.

Our comments on the DEIS fall into two major parts. The first part addresses the process that must be engaged to get us back on track in planning for the California owl and the Sierra Nevada national forests in general. The second major part examines technical problems with the DEIS related to fire, wildlife, socioeconomic analysis, and other issues.

Getting on Track with the Right Planning Process

The Forest Service's Regional Planning Process Was Inappropriate

The centralized development of a management plan and environmental impact statement for the protection of the California spotted owl over a region as large as the Sierra Nevada is not an appropriate process for addressing the biophysical and institutional diversity of this region.

The biophysical variation over the range of the ten Sierra Nevada national forests is very large. Forest types vary from Eastside Jeffrey pine to giant sequoia to mixed-conifer. The ten forests vary considerably in terms of number of owl sites, amount of suitable habitat, and historic timber harvest levels. More generally, the plan area is comprised of five different hierarchical ecological units, based on factors such as climate, geology, landforms, soils, water, and vegetation (U.S. Forest Service 1995).

In addition to varying biologically, the Sierra Nevada national forests also differ in terms of institutional arrangements. Of perhaps the greatest importance is the manner in which various local interests and public agencies have organized themselves to plan for the use of local natural resources, including the national forests. As illustrated by examples such as the Natural Communities Planning Program, the California Biodiversity Council, the Trinity County Bioregional Group, the Shasta-Tehama Bioregional Council, and the Quincy Library Group, we have entered a new era in the use of collaborative processes for addressing natural resource planning and management.

Other institutional considerations that vary across the Sierra Nevada region include the many kinds of demands placed on the forests (e.g., the relative scale of demands for recreation, commodity production, ecosystem preservation), the community infrastructure for forest resource utilization (e.g., resorts, sawmills, biomass plants), local economic dependence on forest resource industries, and the relative levels of public and private timber supply. Also, the levels of intermixed and adjacent development and population centers vary significantly across the region, having profound implications for how the management of national forests impacts the forests' neighbors and vice versa.

Designing the Right Planning Process

The State recommends that the Forest Service implement a new process for the development of plans for addressing the California spotted owl and related ecosystem management concerns. The process should be consistent with the following outline:

- The core of the planning process for protection of the owl should be implemented from the level of the individual forest or small groups of closely similar forests; at the regional level, only the most general guidance should be provided regarding goals for protection of the owl.

- The planning process should be a collaborative one, with close involvement of federal, State, and local government, local groups, and others. Laws and policies that impede these processes should be addressed.

- This planning process should move forward during a two-year interim period, during which the national forests will be actively managed according to guidelines that provide for conservation of the owl while addressing the significant immediate needs for fuels reduction, salvage, and appropriate green timber sales.

- Efforts should be expanded to collect more information on owl habitat needs and population trajectories and to develop and fund processes that provide for adaptive management based on shared data and analysis.

- The individual forest plan amendments arising from this process should be reviewed via a collaborative process at the regional level to ensure that they add up to a "whole" for the protection of the owl and related ecosystem concerns.

Collaborative Planning We believe the most fruitful path for forest resource planning is a collaborative, adaptive-management-based planning process in which local players are major participants in developing information, building alternatives, suggesting analyses, reviewing results, monitoring plan implementation, and modifying plans over time. State agencies, local government, local groups, and all other relevant parties should be allowed to play a central role with the Forest Service in such planning activities for the development of localized plans for the owl and national forest management in general. With everyone at the table, there is greater likelihood for arriving at a more creative solution and less likelihood that an aggrieved, excluded party will sue.

For models of collaboration in the development of alternative forest management approaches, we wish to specifically highlight the work of the Quincy Library Group. The work of the Quincy Library Group, though sophisticated and forward looking, has not received the level of attention and action it merits as a solution to ecosystem management needs (particularly with respect to

minimizing the potential for catastrophic fire) on the Plumas and Lassen National Forests and the Sierraville Ranger District of the Tahoe National Forest. While the Forest Service EIS Team provided opportunities for involvement by communities and organizations such as the Quincy Library Group, the regional scale of the agency's planning effort was too large for this involvement to be very successful and obscured the contribution this approach could make toward resolving localized management problems.

We need not just better coordination of planning for our forest resources, but also better coordination of plans. Planning for natural resources occurs in many ways--county general plans, landowner timber harvest plans or sustained yield plans, national forest plans, state and federal fire plans, coordinated resource management plans, etc. Obviously, not all planning will be done simultaneously in the same arena. Thus, efforts must be made to knit together and make consistent the many kinds of plans and planning processes relevant to California's ecosystems. The concept of plan "tiering," as encouraged by the California Environmental Quality Act and the National Environmental Policy Act, is an apt one here. The California Biodiversity Council has begun to play an increasingly important role in the coordination of multiple levels of planning and could have a significant role in a revamped collaborative planning process for the California spotted owl.

We recognize that the Forest Service faces some specific limitations in the degree to which it may open its planning processes to the public. The Federal Advisory Committee Act has been a stumbling block for Forest Service efforts to include affected and interested stakeholders in planning processes. We encourage and will support all Forest Service efforts to open planning processes to collaboration as far as possible and to work through the proper channels to loosen legal constraints.

Interim Management and Fire Over the past two-and-a-half years, much less harvest and fuels reduction has occurred on the Sierra Nevada national forests than would be allowed under the decision adopted by the Forest Service in January, 1993. During the two-year interim, while the collaborative planning process called for above moves forward, the Forest Service should carry out a more active silviculture and fuels management program that is consistent with guidelines for conservation of the owl. Given the threat that current fire risk levels pose for the spotted owl, other forest resource values, and public safety, implementation of fuels reduction projects should be given top priority. Increasingly, environmentalists, wildlife biologists, commodity producers, Congress, and even the general public recognize that our national forests in many respects need more management, not less.

The planning process for the owl and related ecosystem management concerns should more fully elaborate how the Forest Service will deal with fuels and fire protection issues. As the discussion below indicates, we have significant technical concerns about how these issues are handled in the DEIS. Beyond the technical side, there are currently at least two important fire planning efforts that need to be recognized by the planning associated with the owl.

First, there is the work being done by the Board of Forestry and the Department of Forestry and Fire Protection on revising the Board's fire plan. The fire plan revision is taking a very broad look at wildland fire protection in the state, encompassing federal, state, and local responsibility areas. The Forest Service has been providing information important to this planning process.

Second, there is the work of the California Fire Strategies Committee. This multi-agency, public and private effort is working to improve coordination of fire protection and prevention efforts in the state, strengthen prefire management, involve local communities, and strengthen funding for fuels management, all using an adaptive management approach. While the State and the Forest Service are cooperating at a number of specific points for fire planning, a greater integration of planning efforts remains needed, particularly at this time when the Board is producing a new fire plan and the Forest Service is reviewing its role in fire protection in intermix areas.

Information and Adaptive Management We need to strengthen our information bases, which are one of the most important ingredients in planning processes. Indeed, lack of information about owl populations has been a major limitation in planning efforts for the species. Information collection for the owl and other ecosystem management concerns needs to be an ongoing process, not a short-term, problem-specific or project-specific activity. Consistent collection of information over time constitutes monitoring, which is necessary to know where we have been, where we are, and where we are going, as well as how well the various resource management practices we are applying are achieving their goals. These steps are necessary for implementation of adaptive management strategies, but it must be recognized that they require an ongoing commitment of resources.

New opportunities for collaborative monitoring and evaluation may be created by the Forest Service's recently proposed modifications to the National Forest Management Act regulations, which would require the Forest Service to develop a monitoring and evaluation strategy as a part of the land and resource management plan revision process. The proposal specifically encourages collaboration in monitoring.

Recovering from a Wrong Turn

By following the process outlined above, we believe that the Forest Service can correct a "wrong turn" that occurred in the planning process for the owl. Planning started off right in mid-1991, when a Steering Committee chaired by then-Regional-Forester Ronald Stewart and Resources Secretary Douglas Wheeler formed the "California Spotted Owl Assessment and Planning Team." The Steering Committee established a collaborative process involving federal, state and local government, as well as representatives from the private sector and environmental groups. Structures and processes were developed for providing appropriate biological expertise (a Technical Team chaired by Dr. Jared Verner) and policy and economic expertise (a Policy Implementation and Planning Team chaired by Dr. Richard Standiford).

Unfortunately, this collaborative process largely fell apart when the Forest Service took independent action in January 1993 to implement the Technical Team's recommended interim measures on the ten national forests in the Sierra Nevada (U.S. Forest Service 1993a, 1993b). The Forest Service indicated it was obligated to take this step in light of the findings of the Technical Team report and the National Forest Management Act requirements for maintenance of viable species populations.

The Board of Forestry and others were greatly disappointed when the Steering Committee's interests to collaboratively address the California spotted owl were largely abandoned. While the failure of the Steering Committee is now largely a bygone issue, we must learn from this failure of collaborative process in an effort to strengthen such efforts in the future. Thus, we recognize that planning for the California spotted owl and broader forest ecosystem issues needs to reengage collaborative planning processes, build stronger information strategies, and be more closely connected to local parties and conditions. By implementing the planning process outlined above, the Forest Service can get planning for the California spotted owl back on track.

Technical Comments on the DEIS: The Plan and Analysis are Inadequate

While our greatest overall concern at this time is to see a change in the process for planning for the California spotted owl and related ecosystem management issues, we also have significant technical concerns about the DEIS. Our areas of concern are fire and fuels, the spotted owl and other wildlife, socioeconomic analysis, and several other areas. The Appendix presents additional technical comments directed to specific paragraphs in the DEIS.

Fire and Fuels

The DEIS analysis of fire is insufficient given the ecological importance and potential impact of fire in the Sierra Nevada. The analysis of the incidence of fire and its interaction with management far exceeds that presented in the President's Forest Plan and thus represents a significant analytical advance for the Forest Service. However, the costs of being wrong about fire in the Sierra Nevada are so great that Californians require a more complete and thorough analysis of fire and the options for its management.

The analysis is insufficient in part because the DEIS does not consider all the technical options available for managing fire and fuels. The alternatives are standard silvicultural alternatives with fuels treatment occurring either as part of the silvicultural practices or as a low level background activity focussed on natural fuels. Yet other options are being discussed currently in a range of forums, particularly the California Fire Strategies Team, the Board of Forestry fire plan, the Sierra Nevada Ecosystem Project (SNEP), and the Quincy Library Group. Options under discussion include entirely new silvicultural practices aimed at the creation and maintenance of late successional forest characteristics in the face of threats from fire--options clearly relevant to both spotted owl habitat and overall ecosystem integrity.

Other options focus less on silviculture and more on prescribed fire and mechanical treatments to reduce fire intensity and to control spread. The DEIS itself recognizes the potential of these other options when it finds (in the expanded fire analysis) that differences in fuel reduction treatments **within** a single silvicultural alternative lead to differences greater than those **between** different silvicultural alternatives (U.S. Forest Service 1995, p. 3-93). While prescribed fire and mechanical treatment options are clearly not without costs and implementation challenges, they may have a greater technical efficacy in managing fire, maintaining spotted owl habitat, and achieving other objectives than do silvicultural alternatives. A complete analysis should consider the full range of options currently under discussion in the state.

Although reducing fire risk receives considerable attention in the DEIS, there is little development of criteria or a priority system for directing managers where to conduct silvicultural and fuels management projects so as to achieve the greatest fireproofing impact. Such direction needs to be developed.

While the DEIS analysis of fire represents an advance over previous efforts, it does not cover key aspects of fire to the degree necessary to serve as a basis for decision. It is not so much that the DEIS analysis is wrong, but rather that there is sufficient uncertainty regarding key assumptions that confidence in the modeled outcomes is greatly undermined. We have identified five specific concerns.

First, the DEIS misses key parts of the fire equation by focussing on hazard alone rather the expected loss from fire and therefore misses important influences associated with alternatives. Expected losses (and benefits) from fire result from the probability of an ignition (risk), the probability that, given an ignition, the fire will achieve an intensity (hazard) sufficient to damage a value (exposure) under a certain fire management strategy (institutional response). While hazard is a key component in the equation, the expected loss represents a more comprehensive measure of environmental consequences.

The selection of alternatives on the basis of reductions in hazard alone may lead to surprises if the alternatives simultaneously affect hazard as well as risk, exposure, and institutional response in unanticipated ways. For instance, the DEIS quantifies the environmental consequences of fire largely in terms of the total extent of open and closed canopy stands. The greater the extent of closed canopy stands, the greater the presumed risk of stand-replacement fire. Conversely, the greater the extent of open canopy stands, the lower the presumed risk of stand replacement fire.

The DEIS does not substantiate these relationships. Furthermore, this characterization of hazard is probably insufficient. Understory conditions, such as the presence of fuel ladders or fuel loadings, and special features, such as snags, may be at least as important as overstory canopy closure in determining the probability of stand-replacement fires or significant mortality. Open stands can release understory species from competition for light, thereby increasing surface and mid-tier fuels through the development of grass, shrub, and tree regeneration. The tradeoffs in

hazard driven by these differences between closed and open canopy forests merit a more thorough investigation.

Beyond these considerations, changes in canopy closure may affect risk of fire. Some fire experts find that closed canopy stands are flammable for much shorter periods of time during the fire season than are open canopy stands. Open stands allow more light and wind to penetrate the stand so that surface fuels dry earlier and more completely over the fire season than do surface fuels in closed canopy stands. In addition, the silvicultural practices that move stands from closed to open also may change risk through an increase in likelihood of ignition due to machinery and human access to the forest. In both cases, regardless of the differences in potential fire behavior associated with open vs closed canopy stands, open canopy stands may experience a higher incidence of fire, thereby leading to an equal or even higher expectation of loss.

There is no doubt that the past "natural" condition of the forest landscape was different from what it is today and that fire was the major force in creating past forest conditions. However, the degree to which all forests were open stands with large trees is debatable. Even the patterns of catastrophic fire seem fickle at times, burning some areas severely and others lightly. One can probably assume that historical fires did not burn uniformly either, and that local physiographic conditions distinctly influenced burn patterns. If native Americans burned to promote diversity of habitats (G-6: ¶ 1) and the burning was not widespread (DEIS G-6: ¶ 2), certainly the forest was not all an open forest of big, old trees.

Second, while the DEIS recognizes the importance of landscape pattern, its use of total acres of open versus closed canopy forest ignores the critical role pattern plays in determining expected loss to fire. By emphasizing total acreages, the DEIS essentially suggests that the fire behavior exhibited in a landscape consisting of equal areas of half open-canopy and half closed-canopy forest distributed in a fine grain mosaic is identical to that in a landscape in which the two forest types exist in two separate homogenous blocks. Even under the DEIS's assumptions regarding hazard, it is likely that some closed canopy patches would survive a fire under severe weather conditions in the patchy environment, while under similar conditions in the homogenous environment all closed canopy forest would be lost. The alternatives create spatial patterns not only through management within available areas, but also through unspecified management within the large portions of the forest that are unavailable for management. Management alternatives may create quite different spatial patterns with important consequences for expected loss, yet would appear similar in the DEIS analysis because they produce a similar total extent of forest structure classes.

Beyond considerations of mosaic grain, the DEIS alternatives do not consider the spatial distribution of risk. Recent analysis by SNEP shows that fire risk is quite unevenly distributed over the landscape with higher fire risk in lower elevations. Alternatives that place a large proportion of structurally complex late successional forest at lower elevations in canyons and drainages may increase the probability of their loss to severe fire. A complete analysis of fire would explicitly quantify changes in expected loss due to spatial pattern of the forest.

Third, the DEIS does not appear to quantify the link between management activities within each alternative and subsequent probability of loss to fire. The DEIS appears to analyze fires as events with different but fixed probabilities of intensity applied randomly within entire forest types. The model does not appear to allow management activities to shift the intensity of fire, even though such a shift is the principal motivation for most fuel management activities and is a central point of investigation by SNEP. Only in the expanded fire analysis (which refers to only three forests) does the DEIS undertake a preliminary analysis of these important linkages. Since many of the options under consideration in the state are based on assumed changes in fire behavior, a complete analysis must consider those linkages.

Fourth, the DEIS does not perform an adequate sensitivity analysis related to fire. Since our understanding of the relationship between management and all elements of the fire equation is incomplete, a thorough analysis would investigate potential costs of key assumptions being wrong. The DEIS makes implicit assumptions regarding risk, hazard, exposure, and institutional response but undertakes a sensitivity analysis in the expanded fire analysis of only risk by applying the higher rates of burning in ponderosa pine to other forest types, such as mixed conifer and red fir. Analysis by SNEP is beginning to suggest that the major change in the fire regime after decades of suppression may not be more total acres burned, but rather a shift toward more intense fires. The impacts of more fire may differ considerably from those of greater fire intensity. A complete analysis would explore these differences and assess the degree to which they could change the choice of alternatives. If such an analysis is currently impossible to perform, then the Forest Service should describe the assessment system required to track performance and update policy.

Finally, the DEIS fails to assess impacts of fire to other critical values at risk, principally people and structures. The DEIS quantifies the environmental impacts of fire in terms of forest structure and mortality, but it fails to examine the broader fire-related ramifications (including public safety) of the management of those portions of national forest land that are likely to affect or be affected by adjacent private lands. Recent analysis by the California Department of Forestry and Fire Protection indicates that only a about half of the area (5,400,605 acres, or 51%) within the administrative boundary of the national forests in the Sierra Nevada is true wildland[1] (see maps). Certain areas of the Sierra Nevada national forests (434,600 acres, or 4%) are essentially within or adjacent to developed lands.[2] Even when private lands within the administrative boundary are removed from the analysis, the U.S. Forest Service still owns 285,412 acres in this category. The remaining 45% of the administrative area (4,715,486 acres) consists of intermix fire management environments between developed and wildlands. When private lands are removed, the intermix

[1] Areas with a structure density of less than one per 160 acres, located more than five kilometers from any area with a structure density greater than one per 160 acres, and arranged in a contiguous block of at least 50,000 acres.

[2] Areas located within 2 km of Census blocks with at least one structure per five acres.

environment owned by the U.S. Forest Service amounts to 3,778,625 acres or 36% of the administrative area.

While the Forest Service is not solely responsible for the overall impacts of fire within these different fire management environments, prudence requires that the agency develop coordinated land management and fire management strategies to address risk, hazard, exposure and institutional response in each of these different environments, particularly the 49% of the National Forest that does not meet the criteria of true wildland. A single alternative should not be applied over this diversity of environments.

California Spotted Owl

None of the alternatives, as written and supported in the EIS, do very much to maintain or improve upon current California spotted owl population densities and distribution. All alternatives have short-term and/or long-term impacts that would erode the current status of the owl. In fact, given the premise of the DEIS, one wonders why alternatives were included, which by the DEIS analysis, would not maintain "the current, relatively even, distribution of spotted owls throughout the seven west slope forests" and provide for "self-sustaining populations." Further, the explanations of the alternatives describe neither what the problem is with the spotted owl nor how that particular option will or will not solve the problem.

- Alternative A would perpetuate the current and probably inadequate strategy of using Spotted Owl Habitat Areas (SOHAs). These provide for just a portion of the owl population and not necessarily those quality sites which support the bulk of the population.

- Alternative B would be at a high risk of catastrophic fires. When combined with a habitat dominated by forest which may have a relatively sparse canopy (must only have more than 40 percent canopy closure) compared to that normally utilized by owls (see Technical Team report and DEIS Table 3.E.3), owl density and distribution, both locally and across the landscape, are likely to erode and compromise the stability of the spotted owl population.

- Alternative C or D could remove a third of the potential habitat from the upper one-third of the slope, change the mid-third to being only foraging habitat at best, and allow habitat modifications to the lower one-third. These actions may reduce owl populations by more than 50 percent and also adversely alter owl distribution on both a local and landscape basis. The ecological basis (and not the management basis) for these tri-zone alternatives needs to be explained.

- Alternative E creates a forest so susceptible to high risk fire that expected fires would fragment habitat and spotted owl populations to the extent that the landscape would not be able to support a population of owls adequate to avoid

listing. Also, the remaining stands would have the poorest health conditions where stands would fall apart because of competition for site resources and be even less able to support owls.

- Alternative F also creates a forest so susceptible to high risk fire that expected fires would fragment habitat and spotted owl populations to the extent that the landscape would not be able to support a population of owls adequate to avoid listing.

- Alternative G, if implemented over the long term, would not sustain the replacement of large, older trees needed to sustain denser forests consisting of large and medium-sized trees. The Technical Team management prescription was not intended nor designed as a long-term management scenario. In the long run, it is counterproductive to producing spotted owl habitat over time by not providing replacement trees for the very large ones. Its use in the DEIS as an alternative is inappropriate.

There is nothing specific in the DEIS to assure that there will be a nondeclining flow of big trees in any of the alternatives. This is made even more difficult to track by the lack of information on forest growth for decades two, three, and four. While there is assurance that certain large-tree dominated habitats will increase over time, there is nothing that truly defines the large trees that will be produced. In places there are implications that large-tree dominated areas equate to old growth, which may not be the case for all large-tree areas. Information on tree size, species composition, decadence rating, implied rotation, and density of the various types of large-tree stands should be provided.

The quantities of land in forest types implying suitable habitat are misleading (e.g., DEIS Tables S-1, 2.C.1, 2.E.1-4, 2.F.1, 3.L.1, etc., and text on 3-228: ¶5 and 6). These are cumulative totals of stands of all sizes and do not represent the quantity of stands that are aggregated in such a manner that they form a collection of suitable habitat large enough to support a breeding pair of spotted owls. Likewise, impacts given in percent of the quantity of forest in stands of certain types may understate the impact to that habitat which is aggregated to form suitable owl habitat. Often small isolated stands, which alone may not be large, but in aggregate may constitute a large area, may be stands whose harvest is not convenient or economically justifiable. Larger stands or aggregations of stands of suitable owl habitat in close proximity to one another may be in wilderness (and thus likely to be at higher elevations and much less important to sustaining owl populations) or be economically attractive for harvest. It is these areas where owl densities and adverse impacts from timber harvest are often highest.

In light of the problem noted above, there needs to be some accounting for the number of owls protected in each alternative and over time. Thus, it is critical to know what the owl populations

by alternative are for **each** of the first five decades. Only then will variations in the owl's status over the first 50 years become apparent.

Given the following information from the DEIS, it appears that some national forests have difficulty in determining what suitable spotted owl habitat is, or that the habitat classification system is ambiguous on whether certain types of habitat are or are not spotted owl habitat, or that the quantity of suitable owl habitat without stand size data or fragmentation information may not pertain to the quantity of owls that can be supported. Given these problems, it is difficult to trust the information on suitable habitat, let alone habitat by structure type, projected a decade in the future or out to the fifth decade.

- The Lassen National Forest has no known nesting/roosting habitat, yet 125 sites have been verified on this forest (DEIS Table 3.L.1).

- The Plumas National Forest has the largest number of spotted owls known, one of the largest land bases, and is safely capable of producing the largest volume; yet it has a ridiculously small quantity of suitable owl habitat. The Department of Fish and Game has monitored survey effort on the forests for the last 20 years, and other forests have had survey efforts equal to that on the Plumas. Theoretically, home ranges are larger in the north than in the south, in higher elevation types than in lower elevation types, and where northern flying squirrels predominate in the diet instead of woodrats. Yet the suitable habitat on the Plumas can produce one owl site per 1000 acres while on the Sierra it takes almost 1900 acres.

NATIONAL FOREST	TOTAL # OF SITES	SUITABLE OWL HABITAT		LAND BASE AVAILABLE		LRMP ASQ		"HISTORICAL" ASQ	
		(1000 Acres)	(sites/ 1000 acres)	(1000 Acres)	(sites/ 1000 acres)	(mmbf/yr)	(sites/) mmbf)	(mmbf/yr)	(sites/) mmbf)
LASSEN	125	134	1.07	1049	8.4	141	1.1	96	0.8
PLUMAS	260	260	1	1209	4.7	198	0.8	265	1
TAHOE	143	372	2.60	805	5.6	124	0.9	129	0.9
ELDORADO	205	382	1.86	600	2.9	160	0.8	137	0.7
STANISLAUS	166	247	1.49	904	5.4	146	0.9	88	0.5
SIERRA	217	405	1.87	1328	6.1	125	0.6	88	0.4
SEQUOIA	151	72	0.48	1142	7.6	164	0.4	75	0.5
Source	Table 3.E.1	Table 3.L.1		Table 3.K.8		Table 3.K.3		Table 3.K.3	

The management of the California spotted owl should not be a major force dictating management on forests dominated by Eastside pine habitat (particularly the Modoc and the Inyo). They should not be governed by the same management plan applicable to the seven forests whose owl populations are mostly in mixed conifer, ponderosa pine/hardwood, and red fir types. Eastside areas sustain relatively few sites, and their value to the whole population for short-term demographic support is dubious. These national forests should survey potentially suitable habitats, and known owl sites should be managed on a site-by-site basis in context to overall species management and proximity to self-sustaining populations.

Other Wildlife

The DEIS does not provide an estimate of anticipated habitat types until the fifth decade (Table 3.M.6), which raises the question of whether any alternative will meet diversity goals in the interim. Therefore, the first five decades are critical to understanding the stages that each alternative will go through to reach the designed goal and then estimating what the potential impacts might be to wildlife over that period of time. An example of this concern may be the need to track trends in early successional habitats or trends in suitable owl habitat when PACs dissolve. Thus, the DEIS needs to show anticipated habitat types for **each** decade.

Modifying the Wildlife Habitat Relationships system (WHR) needs to be done. However, as it is carried out here, it is only a structural habitat classification scheme; it carries no wildlife information. The full WHR system also includes species use by habitat type matrices which are the basis of the WHR system. The DEIS needs to change its referencing of this system from a WHR classification system to a habitat classification system.

If the DEIS is to adequately addresses ecosystem management and vegetation control, both the positive and negative effects of grazing must be discussed if grazing is to continue on Forest Service land. Whether intended or not, grazing affects vegetation growth, and subsequently vegetation types and density. The DEIS needs to describe how grazing could be used in vegetation management to assist in reduction of the understory, and to disclose what adverse side effects may result to certain parts of the flora and associated wildlife.

Further, the DEIS cannot meaningfully discuss meadows and willow flycatchers without discussing grazing. The DEIS must disclose the effects on timing and quantities of water supplies to meadows and associated water tables due to thinning of the forest and grazing, as well as what might be the anticipated negative effects caused by this change in the water supply regime to these areas.

The DEIS does not adequately describe the alternatives" effects on early successional species. The analyses of the proposed alternatives indicate that the greater area of open canopy forest will improve conditions for mule deer. However, the historic record for the Sierra Nevada indicates that the original open-spaced, large tree dominated forests were relatively lightly populated with deer.

Socioeconomic Issues

The flow of products and services from the national forests in the Sierra Nevada has a major impact on the economic well-being of individuals, communities, counties, and the region as a whole. While the DEIS takes a regional look at the potential impacts of the alternatives examined, it fails to look at the impacts on specific counties or communities. By examining impacts only at the regional level, significant local impacts get obscured.

The State raised a similar complaint about the socioeconomic analysis in the President's Forest Plan. The response to that complaint was that such impacts could not be addressed in a regional plan, but would be addressed in more localized plans, such as forest plans. However, since the regional plan clearly commits the more localized plans to certain management restrictions, there is very limited discretion at the local level (i.e., the individual national forest) to change or moderate impact levels. Therefore the regional plans present the local levels with what is largely a *fait accompli*; thus, it is only reasonable and rational for regional plans to disclose localized socioeconomic impacts to the greatest degree possible. The current DEIS does not meet this standard. The development of more localized plans for the owl, as recommended in the process comments, above, will facilitate the analysis and disclosure of socioeconomic impacts.

None of the alternatives examined in the DEIS consider permissible departures from nondeclining even flow (NDEF) harvest level constraints. Legitimate departures from the NDEF constraint would increase employment and hasten reduction of fire risks through allowing greater quantities of materials to be removed sooner, rather than later. While harvests would eventually have to be brought into line with the long-term productive capacity of the national forest lands, a departure from NDEF would allow communities a "soft landing" from the harvest reductions necessary to protect the owl and other ecosystem values.

Implementation of the Forest Service interim guidelines since January 1993 has had a major impact on timber sales from the Sierra Nevada national forests. The current planning effort to develop new owl protection measures has an obligation to assure timber-dependent communities the highest levels of economic opportunity consistent with owl protection, ecosystem health, and economic efficiency. The report of the California spotted owl Policy Implementation Planning Team provided numerous suggestions for mitigating the economic impacts of the Forest Service interim guidelines.

Harvest of large, older, and more valuable large trees likely will have to remain at a low level in order to provide adequate owl habitat. However, there are significant other economic opportunities to be pursued on the Sierra Nevada national forests. A particularly important area is the reduction of the current high level of fire hazard through fuels reduction. Fuels reduction strategies can produce both biomass materials as well as small sawlogs. While these activities will frequently produce less revenue than their costs, they can offer significant long-term payoffs in terms of reduced costs of fire suppression, watershed rehabilitation, and property damage, not to mention improved public safety.

We encourage the Forest Service to be more creative in finding ways to facilitate economic activities on the national forests. Where Forest Service regulations get in the way of economic opportunities that are compatible with owl protection and healthy forest ecosystems, the agency should change those regulations. Where federal legislation gets in the way, the Forest Service should petition Congress to change the law.

One way of fostering more creativity in offering economic opportunity on the national forests is for the Forest Service to collaborate with local parties. Local woods workers often know best what can and cannot be done, what costs and revenues are, what pays and what does not pay. The collaborative planning processes recommended in these comments will help to capture the creativity and know-how of local woods workers and forest products companies.

The DEIS does not examine the potential effects of the alternatives on the Department of Forestry and Fire Protection (CDF). The fire regimes resulting from the alternatives could increase fire protection demands on CDF, with resultant effects on the Department's budget and programs. Decreased harvesting on national forests will result in greater harvest activities on private lands, increasing CDF's workload in Forest Practice Act enforcement, again affecting Department programs and budgets. These "spillover" effects should be documented and assessed by the Forest Service.

Other Areas

The planning process for the spotted owl and related ecosystem management concerns needs to develop a more realistic and reasonable range of alternatives. The collaborate planning process recommended here should assist the Forest Service in developing an improved set of alternatives, particularly alternatives that represent management plans developed by local groups.

The revision of the DEIS should be timed to take advantage of the outputs of the Sierra Nevada Ecosystem Project. Draft papers are now circulating among members of the SNEP team and a final SNEP report is expected by the end of 1995. The results of this study of the entire Sierra Nevada region will provide critical information to the Forest Service EIS team, as well as others concerned about the owl and many other aspects of the Sierra Nevada ecosystem.

The outputs of SNEP, when combined with the work of the Technical Team and the EIS team may provide the critical mass of information needed for the development of the regional ecological indicators recommended by the report of the Board of Forestry's Wildlife/Science Committee (Wildlife/Science Committee 1994). These indicators would provide a guide to the landscape level characteristics that need to be maintained across a region (there would likely be several such regions in the Sierra Nevada) to assure healthy ecosystems for wildlife. The regional ecological indicators would provide important guidelines to locally-based collaborative planning processes.

The management guidance for the preferred alternative in the DEIS is written with significant discretionary latitude. While this attempts to provide the individual forests with the latitude they may need to implement the alternative appropriate to local circumstances, there are no standards or criteria provided to guide the use of this discretion. The reader of the document has no idea what determines whether the decision-maker "may" or "may not" take any of these actions. In such instances, the reader cannot determine if the alternative being discussed has been evaluated with the actions occurring or not occurring. This problem, and the general tension between pure

top-down vs purely bottom-up approaches, should be alleviated by the balanced bottom-up/top-down planning approach called for in these comments.

The DEIS gives the implication that each alternative will receive full funding and implementation. Full funding of all measures called for in any alternative is not likely to occur throughout the implementation of the plan. Therefore, the likely effects of partial implementation should be discussed fully.

Other than the standards and guidelines section in the "Summary" (and the identical Appendix L), there is no further discussion of monitoring. There needs to be a discussion of the assumptions for the consistency analysis and the consistency analysis requirements which should describe the general goals of the monitoring effort. Without these goals it is impossible to understand why certain assumptions are made and what questions the activities required are designed to answer. Therefore, it is not possible to determine if monitoring will be effective or if it can lead to an adaptive management process.

The DEIS does not deal effectively with intermingled and adjacent non-Forest Service lands. The descriptions of the alternatives do not discuss the effect of these lands on future vegetation patterns, owl populations (numbers, distribution, and dispersal), and other wildlife, nor on fire risk within the context of action proposed by the alternatives. The DEIS also fails to discuss the effects of changes in private forestland management (such as increased timber harvest) that are likely to result from implementation of a new spotted owl protection strategy on the national forests.

Concluding Comments

The Forest Service should replace their planning process for the California spotted owl with the process outlined above:

- Conduct the planning process from the level of the individual forest or small groups of closely similar forests; at the regional level, only general planning guidance should be provided, as well as assurance that the local plans add up to a Ąwhole.Δ

- The planning process should be a collaborative one, with close involvement of State and local government, local groups, and others. Laws and policies that impede these processes should be addressed.

- This planning process should move forward during a two-year interim period, during which the national forests will be actively managed according to guidelines that provide for conservation of the owl while addressing the significant immediate needs for fuels reduction, salvage, and appropriate green timber sales.

- Efforts should be expanded to collect more information on owl habitat needs and populations.

In addition to these process concerns, we have also identified numerous technical concerns with the DEIS. These technical concerns should be addressed in the next phase of planning efforts for the owl.

We recognize that we are proposing a significant departure from the Forest Service's usual planning process. However, we believe that our recommendations better fit the biophysical and institutional realities of the diverse Sierra Nevada region that is home to the California spotted owl. The State is committed to cooperating with the Forest Service and other parties in reconstituting the planning process to develop a set of plans and ongoing collaborative, adaptive management processes that better balance owl protection, fire risk, ecosystem management, and provision of economic opportunity on the Sierra Nevada national forests.

Relevant Materials

Gorton, Terry. 1992. Memo to members of the California Spotted Owl Steering Committee. December 8, 1992. Chairman, Board of Forestry, State of California, Sacramento.

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Stewart, Ronald E. 1991. Letter to Douglas Wheeler, Secretary, the Resources Agency of California. Dated April 23, 1991. Regional Forester, Pacific Southwest Region, Forest Service, U.S. Department of Agriculture, San Francisco, CA.

Thomas, J.W., E.D. Forsman, J.B. Lint, E.C. Meslow, B.R. Noon, and J. Verner. 1990. A Conservation Strategy for the Northern Spotted Owl. Report of the Interagency Scientific Committee to Address the Conservation of the Northern Spotted Owl. Forest Service, U.S. Department of Agriculture; Bureau of Land Management, Fish and Wildlife Service, and National Park Service, U.S. Department of the Interior. U.S. Government Printing Office, Washington, D.C. 427p.

U.S. Forest Service. 1993a. California Spotted Owl Sierra Province Interim Guidelines Environmental Assessment. U.S. Department of Agriculture, Forest Service, Pacific Southwest Region, San Francisco, CA.

U.S. Forest Service. 1993b. Decision Notice and Finding of No Significant Impact for California Spotted Owl Sierra Province Interim Guidelines. U.S. Department of Agriculture, Forest Service, Pacific Southwest Region, San Francisco, CA.

U.S. Forest Service. 1995. Draft Environmental Impact Statement--Managing California Spotted Owl Habitat in the Sierra Nevada National Forests of California, an Ecosystem Approach. U.S. Department of Agriculture, Forest Service, Pacific Southwest Region, San Francisco, CA.

Verner, J., K. McKelvey, B. Noon, R. Guttierrez, G. Gould, and T. Beck. 1993. The California Spotted Owl: A Technical Assessment of its Current Status. General Technical Report PSW-GTR-133, U.S. Forest Service, Pacific Southwest Research Station, Albany, CA.

Wildlife/Science Committee. 1994. Approaches to Wildlife Cumulative-Effects Assessment and Analysis. September 2, 1994. Report of the Wildlife/Science Committee to the California Board of Forestry, Sacramento.

APPENDIX

TEXT-SPECIFIC COMMENTS

Page S-1: Paragraph 4. This was part of an interagency program. There was another half of this process which is not even mentioned here. Why wasn't that interagency process more accurately portrayed here?

S-3:¶4. How would clearcutting be determined to be the "optimum method," by its ability to perform a silvicultural task, or to be the most economically viable method over a certain period of time?

S-6:¶2. See comment for S-24: "Assumptions" section, Item 4.

S-7:¶1. What is meant by active restoration? Would large trees be harvested? Why should there be a reason for salvage of endemic mortality? It will only remove those large snags that have the highest ecological value because they will be the only ones for which removal makes economic sense.

S-7:¶4. If stands are allowed to grow older and are not harvested, won't there be a trend to acquire more and more land into reserves? What is the definition of a stand? It is mentioned that there would be little harvest except surrounding reserves. Wouldn't there be some harvest in areas in the matrix between reserves under the Technical Team prescription? The Technical Team prescription should not be used here; it's not conducive to long-term forest management. In this alternative, as trees get larger under the Technical Team prescription there will be less and less harvest until the desired stand is created. This stand will have a relatively short life as large trees will eventually die and it will take a substantial time for new large trees to regenerate since the replacement cycle has been interrupted for some time. This creates a forest with a much more variable structure over time and a longer growth and replacement cycle. This poses potential major problems for sustaining forest wildlife over time.

S-8:¶1. The Technical Team prescription should not be used here; it's not conducive to long-term forest management.

S-8:¶7. See comments above for S-8:¶1. Also, is this the only alternative where Protected Activity Center (PAC) and Spotted Owl Habitat Area (SOHA) base habitat is removed from the timber base? Doesn't this affect how harvest might be done if this is not the case with the other alternatives but these areas will not be harvested in the first decade? This also could lead to a concentrated pressure on ex-PAC/SOHA base habitat after the first decade if most of the other easy timber harvest options have been used.

S-9:¶4. This plan should not cover most Eastside pine habitat. The few areas with known owl sites should be identified and included. The remaining Eastside pine habitat should be excluded from consideration in this DEIS.

S-9:¶7. This paragraph is very misleading. There are quite a few known owl sites, and in a number of areas they are well-distributed. However, demographic information is still

unclear whether the population of California spotted owls, at least in some areas, is declining or not. What it is doing in other areas is completely unknown. Spotted owls are not well-

distributed throughout the Sierra Nevada. The Technical Team report (Chapter 3, pages 45 and 47) identified eleven areas where there were distribution problems, the product of five different conditions causing those problems. Also, it is possible that the current population of spotted owls is less than it was 100 years ago or prior to Euro-American settlement.

S-9:¶9. All remaining alternatives might not retain an even distribution of owl habitat or of a stable spotted owl population. There is no information provided on the number of PACs and SOHAs that would be lost in the three-tier alternatives, would not be included in reserves, or lost if group selection occurred in a clumped pattern. This problem would be paramount once PACs and SOHAs are dissolved after the first decade.

S-10 and 11. According to informational meetings held between the DEIS staff and the Technical Team and State foresters and biologists, the historical allowable sale quantity (ASQ) is not the same type of figure that is being used to measure the quantity of the harvestable timber in the future. The DEIS should mention that ASQ in the past has been a goal and that in the future it is a maximum.

S-11: Table S.1. It seems that owl populations could be modeled knowing their numbers, current distribution and the locations of management areas for each alternative to provide the number of owl territories where habitat will be in place from the first through the fifth decade. Also, it is critical to know what occurs at the end of the second, third, and fourth decades since plans can be expected to extend beyond fifty years. There may be crucial reductions in owl numbers, amount of late-successional habitat, ASQ, etc. which might be expected to occur between decade one and five, when a plan might terminate, which would not be known at this time.

S-12 and 13. The quantity of acres with a high potential for stand replacement fire is only one of a number of conditions that helps predict whether there actually will be a large amount of area affected by stand replacement fires. Some of those other conditions are discussed for the various alternatives (S-12:¶5). Those conditions are not necessarily exclusive to the alternatives given, nor is this a complete list of conditions which could be used to reduce fire hazards. Some of these other conditions, such as the size and placement of high risk stands, their juxtaposition with other habitat types, and their relationship to private lands and other cultural features, should be discussed. Only through recognition of many of these other factors in planning management activities, do you minimize the risk of stand replacing fires regardless of the inherent benefits or liabilities of the alternative. This means that the placement of projects which would have benefit to fire reduction based on where there is the greatest need to reduce fire risk, even in a landscape with a high volume of high risk forest, might prove to be more fireproof than haphazard placement of those projects in a landscape with a low volume of high risk forest.

S-14:¶3. Dusky-footed woodrats, northern flying squirrels, and spotted owls are found in riparian zones; however, they are not riparian/wet meadow species.

S-14:¶7. The flammulated owl is not necessarily tied to open-canopy forest. It is considered tied to edges within forest types, generally where medium and large trees, and ponderosa pine and/or deciduous oak, are present. Often this ecotone is subtle, and the overall habitat is similar to that occupied by spotted owls.

S-15:¶2. The great gray owl (misspelled in DEIS text) is a forest/meadow ecotone inhabitant, or inhabitant of open forest. It hunts mainly microtines and gophers, neither of which would be considered dependent upon medium/large tree, closed canopy forest situations.

S-15:¶4-6. You should define the scale you use with the terms ecotone and mosaics. Alternative B provides probably the largest amount of ecotone and area with a mosaic pattern, but at a very local scale. Alternatives C and D, on the other hand, produce recognizable, large blocks of three different habitat types, all of which occur within the same drainage. However, the ecotone may be relatively simple (especially Alternative C) and blocks of habitat may be hundreds to thousands of acres in size.

S-15:¶7 and 8. There will be "no effect" on Owen's tui chub and Owen's pupfish but there "may be an effect" on these same two species. Which is it? It can't be both.

S-16:¶2. Populations of willow flycatchers are tenuous at best, being generally small and isolated from one another. The Sierra Nevada population is exists only on the stability of each local population. Where the loss of an individual weakens the stability of a local population, the loss of a local population adversely affects the overall population.

S-16:¶4 and 5. It seems that if Alternatives A and E are likely to lead to the listing of the spotted owl, similar fire risk conditions also would lead to the listing of the fisher.

S-20: Item 1. What criteria would be used if the crosswalk given were not used to determine what a large or a small perennial stream is? How many miles of each of the four types of stream classification occur on each forest?

S-20: Item 6. What are the criteria that determine when a connector should be created and when one would not be created?

S-21. The term pre-Euro-American needs to be defined.

S-22: Item 2. Define term "commonplace."

S-22: Items 3 and 4. Criteria are needed for "Minimize" in Item 3 and "When warranted" in Item 4.

S-22: "Intent" section. It seems from this section and the following guidelines that the vast majority of owl sites will be not be protected because the nest sites are not known and only the nest sites will be protected.

S-23: Item 2. What criteria would be used to determine if PAC or SOHAs "may" be replaced if they were lost due to catastrophic events, or "may" be created if found after January 1, 1993? Likewise, what controls whether PACs and SOHAs "may" or may not be phased out after the year 2005?

S-23: Item 3. What is the biological basis to support maintaining a site for only two years after it is found? How is this supported by current knowledge of the occupancy of spotted owl sites?

S-24: "Assumptions" section, Item 2. Protecting the third of the owl population occurring on the lower-slope zone is not a sufficient safety net for the whole population and does not make it unnecessary to check the impacts caused by projects in the other two-thirds of the owl's potential habitat.

S-24: "Assumptions" section, Item 3. If the upper-slope zone is not likely to provide dispersal habitat, then each drainage may have 50 to 80 percent of the circumference of the drainage acting as a barrier to dispersal. This is significantly different from the current situation and is not addressed at all in the DEIS.

S-24: "Assumptions" section, Item 4. Alternative C is fatally flawed because of the statement here that it is possible to not replace any of the PACs and SOHAs in mid- and upper-slope zones and the statement (see S-6:¶2) that the objective of the mid-slope zone is to provide foraging habitat. There is no information presented in the DEIS which estimates the loss of PACs and SOHAs, the loss in the total number of sites, and the changes to the spotted owl's distribution in the Sierra Nevada caused by limiting the distribution of nesting areas to only the lower-slope zone.

S-25: Item 4 and S-27: Item 3. Large logs are considered to be greater than 20 inches in diameter. Just as there is a difference to wildlife in the size of standing live and dead trees between those 20 inches in diameter and those considerable larger (e.g., 40 inches), there is a difference to wildlife in log sizes. Some direction should be given to accentuate the maintenance of the really large logs.

S-26: "Intent" section, Item 3, S-27: "Standards and Guidelines" (S&G) section, Item 1. What are the criteria that guide whether stocking and dead and down retention level "may" be higher, and whether snag and down log retention standards "may" be lowered "where appropriate"?

S-26: S&G section, Item 2. To what extent are clumps of snags preferred to scattered individual snags? Does this indicate that all the snags in a drainage could be in one clump?

S-27 and S-28: Item 1. Where is the potential impact of these fuelbreaks described? The reader needs to know what the loss will be in acres of owl nesting habitat, owl roosting habitat, and owl foraging habitat. Will these fuelbreaks be synonymous with the fuelbreaks in these zones around urban areas, and around other private lands?

2-21 and 22 and 23. There is no ecological reasoning provided that justifies the division of a slope into three equal parts, each containing specified habitat conditions. Why couldn't a different percent of the slope be used for one or all of the zones? Why not four zones, with different habitat conditions than suggested here?

2-21 through 2-27. In both of the 3-tier alternatives there will be a considerable loss of suitable owl habitat since the upper tier will not even be dispersal habitat and the mid-tier will only be foraging habitat. Therefore, it is difficult to understand how all forests will show dramatic increases (including an increase of 453% on the Sequoia) in the quantity of nesting, roosting and foraging habitat (Table 3.L.2).

2-23:¶3 and in similar sections for other alternatives. What are the criteria that will cause PAC and base SOHA habitat to be phased out? The implication is that the owls will colonize new habitat but there is no way to determine if PAC/SOHAs will be phased out on a one-for-one basis regardless of any other parameter which might rate the new site's ability to help sustain the population against the PAC/SOHA's ability.

2-24:¶5. Under what circumstances is it possible that "wildlife zoning . . . could dissolve," and under what conditions wouldn't these areas dissolve?

2-25:¶2. It's stated that "A small amount of timber could be harvested . . . " in the late-successional and riparian area. With prescriptions somewhat similar for the mid- and upper-slope areas between this alternative and Alternative C, and the ASQ increasing by three-quarters, it seems that more that a "small amount" of harvest is expected to come from the late-successional and riparian area.

2-26:¶3. If the amount of large-tree dominated, closed canopy forest would increase by half over the next five decades, this increase will not occur in the mid-slope area since the goal here is for medium-large trees with a canopy cover of 40 percent. One has to assume that riparian areas are currently in a condition with a significantly reduced large tree component.

2-30:¶1 and 2. The usual purpose of a reserve alternative is to support enough individuals in preserves so that species can perpetuate itself. The description of Alternative E gives no hint as to how many spotted owls will be maintained in each reserve nor how many owls will supported in each segment of the matrix between reserves. This lack of description makes it impossible to assess if the reserves will maintain sufficient populations to perpetuate the species and if the matrix will augment the population to the point where it demographically supports the reserve population or acts as a population sink.

2-32. It appears from Figure 2.E.1 and Table 2.E.5 that Alternative F will not support the intent of the Quincy Library Group in Other Areas. The Lassen, Plumas, and Sierraville Ranger District of the Tahoe National Forest contain a significant number of reserves. Relatively, these areas are absent south of the Tahoe National Forest.

2-41: Table 2.F.1. See comments for S-112: Table S-1.

2-44 and 45. See comments for S-14:¶3 and ¶7 and for S-15:¶2.

3-11:¶5. "...(Table [otherown1])." should read Table 3.B.1.

3-12:¶2 and 3. Table 3.E.1 indicates that there are four owl sites on Bureau of Land Management (BLM) lands in the Sierra Nevada. Current Department of Fish and Game records indicate 11 sites on BLM lands spread over eight counties.

3-29:¶2. While green tree retention shelterwoods might enhance woodrat populations, it remains to be seen that spotted owls could effectively utilize the woodrats found in shelterwoods. There is the potential that by opening the canopy, great horned owls might invade the shelterwood to feed on an abundant woodrat population. Not only would this competition have an adverse impact on spotted owls, the occasional predation on spotted owls by great horned owls would exacerbate the negative impact.

3-29:¶5. Many of the situations where owls show little effect to local disturbances are sites where those disturbances are strictly diurnal, habitual or are recurring over a long period of time, or have grown over a fairly long period of time. Casual observations of spotted owls apparently tolerating disturbance are often of owls choosing sites close to disturbances. Little is known of the effects of new disturbances to owls already situated at a site, especially of the impacts of that disturbance which may not manifest itself until after the current breeding season.

3-39:¶2. It appears that beavers never really were residents of the Sierran Province prior to planting them there by Euro-Americans. Please see: Tappe, D.T. 1942. The status of beavers in California. State of Calif., Division of Fish and Game. Game Bull. No. 3. 59 pp. and Hensley, A.L. 1946. A progress report on beaver management in California. Calif. Fish and Game 32(2):87-99.

3-122. While you may want to maintain a natural level of disturbance process, these processes often are increased due to land management activities that alter soil permeability and stability. Additionally, landslides contribute the major portion of fines found in streams.

3-125. ¶4. Although sediment may not be directly lethal in some circumstances, please note that Cordone & Kelley, 1961, also state "There is abundant evidence that sediment is detrimental to aquatic life in salmon and trout streams" (p 222).

3-126. ¶2. Effects of logging activities and grazing deserve the same depth of discussion as roads as the source of increased sedimentation.

3-126. ¶4. Wildfires themselves may be far less responsible for sedimentation than the associated suppression, salvage, and replanting activities.

3-127. ¶5. "The largest increases in water yield usually occur when forests are clear-cut" is contrary to 300 years of science that has shown that as forests are clear-cut, precipitation decreases.

3-130. This is a good set of questions, but where is the monitoring necessary to determine the status of the aquatic resource and if goals are attained?

3-131. ¶5. However, what occurs within the buffer can be devastating to the aquatic environment as well and compromise the whole theory behind riparian buffers. Salvage/logging within the buffer, the use of culvert and wet stream crossings rather than bridges, and cattle grazing reducing understory vegetation in the buffer are but three problem activities that cause large sediment problems.

3-139: Table 3.J.2. This table should include all of the waterways listed below because of their wild trout and/or "catch and release" designations, wild and scenic river designations, that they support sensitive, candidate, threatened or endangered species, and/or that they are significant recreational streams:

<u>Modoc National Forest</u>

Pit River, East Fork Creek[1], Parsnip Creek, Pine Creek[1], Parker Creek[1], Davis Creek[1], Lassen Creek[1], Willow Creek[1], Cottonwood Creek[1], Joseph Creek[1], Dismal Creek[1], Twelvemile Creek[1], Bidwell Creek, Washington Creek[1], Turner Creek[1].

<u>Lassen National Forest</u>

Deer Creek[1], Mill Creek[1], Pine Creek[1] (Eagle Lake), Hat Creek, Robbers Creek, Susan River, North Fork Feather River above Lake Almanor, Warner Creek, Antelope Creek, Soda Creek, Yellow Creek, Pit River.

<u>Plumas National Forest</u>

Yellow Creek, Nelson Creek and forks, Bucks Creek, Grizzly Creek, Onion Valley Creek, Slate Creek, Red Clover, Creek, Canyon Creek, North Fork Feather River, East Branch North Fork Feather River, South Fork Feather River, Middle Fork Feather River, Indian Creek, Spanish Creek, Last Chance Creek.

<u>Tahoe National Forest</u>

Canyon Creek, Middle Fork Yuba River, North Fork Yuba River, South Fork Yuba River, North Fork American River, Middle Fork American River, North Fork of Middle Fork American River and tributaries, North Fork of North Fork American River, Little Truckee River, Lavezzola Creek, Pauley Creek, Independence Creek[1], Perrazo Creek, Salmon Creek, Downie River, Sagehen Creek, Truckee River, Pole Creek[1].

<u>Eldorado National Forest</u>

Middle Fork American River, South Fork American River, Rubicon River, North Fork Mokelumne River, Silver Fork, Camp Creek, North Fork Cosumnes River, Middle Fork Cosumnes River, South Fork Rubicon River, Rock Creek, Jones Fork of Silver Creek, Little Silver Creek, Woods Creek, Caples Creek.

Stanislaus National Forest

North Fork Mokelumne River, North Fork Stanislaus River, South Fork Stanislaus River, Clavey River, Tuolumne River, South Fork Tuolumne River, Middle Fork Tuolumne River, Clarks Fork, Eagle Creek, Highland Creek, Shoefly Creek, Marshall Canyon Creek[1].

Sierra National Forest

Merced River, South Fork Merced River, Big Creek, Willow Creek, San Joaquin River, North Fork San Joaquin River, South Fork San Joaquin River, Kings River, Dinkey Creek, South Fork Kings River, Willow Creek, Big Creek Canyon, Middle Fork San Joaquin River, Mono Creek, North Fork Kings River, Middle Fork Kings River, Chiquito Creek, Kaiser Creek, Portuguese Creek[1], Cow Creek[1].

Sequoia National Forest

Kings River, South Fork Kings River, Middle Fork Kings River, Kaweah River, North Fork of Middle Fork Tule River, South Fork of Middle Fork of Tule River, Middle Fork Tule River, North Fork Tule River, Kern River, South Fork Kern River, Rattlesnake Creek[1], Peppermint Creek[1], Freeman Creek[1], Fish Creek[1], Trout Creek[1], Salmon Creek[1]

[1] Sensitive, candidate, threatened or endangered species present.

3-224:¶1. The third sentence misrepresents the historical situation as it implies a uniformly different forest used to exist. The DEIS needs to state that there was significantly more forest that had large, older trees with a more open canopy, and that, in fact, north facing slopes may have looked very much like some parts of the current forest.

3-225:¶4. Once again, there were probably forests with just as complex vertical within-stand structure as is seen commonly in today's forests. It's just that there wasn't as much of that type of forest historically.

3-225:¶6. See comments for S-9:¶7.

3-230:¶3. Why didn't the tracking of the amount of suitable owl habitat on the primary forests detect any significant differences between forests? By comparing the current numbers of owls (Table 3.E.1), ASQ (3.K.3), timber volume (3.K.8), suitable forest landbase (3.K.8), and amount of suitable owl habitat (3.L.1) it appears that the Sierra National Forest and the Plumas National Forest are not counting suitable owl habitat in the same way. That would affect the future trends of suitable owl habitat on each forest.

3-230 and 231. Some amount of analysis at a local level must be done to understand the difference between alternatives' impacts on the fragmentation of individual owl sites, or even if individual owl sites (maybe represented by the PAC or the SOHA) fall into habitat zones which may have more impact on the site than other zones. Protection by classification as a PAC or a SOHA means little if these classifications may be dissolved after the first decade. This is particularly important when there is no tracking of conditions from the first to the fifth decade provided in the DEIS. There is no way to assume what short-term trends will occur in habitat quantities and the number of owls over this period of time.

3-235:¶4 and 5. Alternative E has high risk of high severity fires (3-245) which could cause significant gaps in suitable owl habitat and owl distribution. This fact should be considered in the text dealing with the connectivity of habitat.

3-292:¶7. See comments for S-16:¶4 and 5.

E-89 and 90. How much more timber would be taken from the general riparian area of Alternative D that would not be available in Alternative C?

E-238: Table 1. Eagle Lake rainbow trout occur on the LAS, not the SEQ. Paiute cutthroat trout are not on the LTB but are on the INY.

E-245. Mention should be made that the Volcano Creek golden trout in the South Fork of the Kern River has been adversely affected by livestock grazing which has seriously degraded the stream habitat.

E-255. It is stated that the mountain yellow-legged frog is rare or absent in high elevation lakes with established trout populations. This is only partly true. In lakes with marsh margins and side pools where tadpoles can escape predation by trout, the coexistence of this frog with trout is commonly observed.